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George N. Chaclos  
Edwards & Angell, LLP  
P.O. Box 55874  
Boston, MA 02205

EXAMINER
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BALAOING, ARIEL A

ART UNIT	PAPER NUMBER
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2617

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Please find below and/or attached an Office communication concerning this application or proceeding.



Art Unit: 2617

### **DETAILED ACTION**

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

### ***Response to Arguments***

Applicant's arguments filed March 7<sup>th</sup>, 2006 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant argues "the relative distance estimation is according to a different technique than that of Callaway, which does not disclose such a technique. As a result, the apparatus of Claim 1 can perform an estimation accurately even in case where the mobile terminals are of different types (see page 52, lines 20-24). Accordingly, for at least this reason that the transmission level is used in the distance estimation, Claim 1 and each of the remaining claims depending therefrom distinguish the subject invention from Callaway" (see page 11 of the remarks); the examiner respectfully disagrees. Claim 1 recites the limitation "*relative distance estimation means for estimating a relative distance to the mobile terminal in accordance with the respective difference values*". As can be seen from the abstract, Callaway uses received signal strength indicator (RSSI) values in conjunction with transmitted power levels to determine the relative location of each device. Furthermore, col. 8, line 58-col. 9, line 15, tomography of all the networked devices is achieved by analysis of the path loss of a received signal and power levels (i.e. the difference between transmitted power level and RSSI). Distance calculations are further achieved by a comparison of RSSI vs. carrier frequency (Figure 8). It is also noted that the use of difference between

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transmitted and received signal levels to determine a relative distance of a mobile communication device is well known in the art (e.g. Okumura propagation model, Hata/Davidson propagation model).

Regarding claim 8, the applicant argues "Callaway does not disclose or suggest reception level sorting means for sorting the reception levels acquired by the reception level acquisition means" (see page 11 of the remarks); the examiner respectfully disagrees. From col. 7, lines 42-58, an algorithm is suggested to sort the RSSI into bins to calculate the width between the two lowest bins.

Regarding claim 9, the applicant argues "Callaway does not disclose or suggest difference value sorting means for sorting difference values calculated by the difference value calculation means" (see page 12 of the remarks); the examiner respectfully disagrees. From col. 8, line 58-col. 9, line 15, path loss is stored within a database to determine the tomography of the system. As the applicant has not pointed out how the data is sorted, storage of the path loss to determine tomography must involve sorting of some form.

### ***Claim Objections***

2. Claim 20 objected to because of the following informalities: Claim 20 depends on any one of the claims 1-15, 18 and 19, however claim 2 has been cancelled. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-9, 13, 14, 16-20 rejected under 35 U.S.C. 102(e) as being anticipated by CALLAWAY, JR et al (US 6,745,038 B2).

Regarding claim 1, CALLAWAY discloses a wireless communications apparatus comprising: reception level acquisition means for acquiring respective reception levels of wireless signals transmitted from at least one mobile terminals (abstract; column 5:line 44-53); transmission level acquisition means for acquiring respective transmission levels of the mobile terminals (abstract; column 7:line 59-column 8:line 48; col. 8, line 58-col. 9, line 15); difference value calculation means for calculating respective difference values between the transmission levels and the reception levels (abstract; column 7:line 59-column 8:line 48; col. 8, line 58-col. 9, line 15; path loss calculations); and relative distance estimation means for estimating a relative distance to the mobile terminal in accordance with the respective difference values (column 7:line 59-column 8:line 48; col. 8, line 58-col. 9, line 15; path loss calculations).

Regarding claim 3, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses wherein: the reception level acquisition means measure the respective reception levels of the

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wireless signals (abstract; column 5:line 44-column 6:line 51; column 7:line 59-column 8:line 48); and the transmission level acquisition means retrieve respective transmission levels of the mobile terminals contained in the wireless signals (abstract; column 5:line 44-column 6:line 51; column 7:line 59-column 8:line 48).

Regarding claim 4, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: transmission level writing means for writing a transmission level of the wireless communications apparatus into a wireless signal to be transmitted to the mobile terminal (column 5:line 44-column 6:line 51; column 7:line 59-column 8:line 48).

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses wherein: the transmission level writing means write an identification code of the wireless communications apparatus into the wireless signal (column 5:line 44-column 6:line 51; column 7:line 59-column 8:line 48; transmission levels gathered the master station are arranged to include slave id's from the wireless signal transmission).

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: reception level writing means for writing the reception level into a wireless signal to be transmitted to the mobile terminal (column 5:line 44-column 6:line 51; column 7:line 59-column 8:line 48; reception levels gathered at the master station are arranged to include slave id's from the wireless level transmission).

Regarding claim 7, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses wherein: the reception level writing means write an identification code of the wireless communications apparatus into the wireless signal (column 5:line 44-column 6:line 51; column 7:line 59-column 8:line 48; reception levels gathered at the master station are arranged to include slave id's from the wireless level transmission).

Regarding claim 8, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: reception level sorting means for sorting the reception levels acquired by the reception level acquisition means (column 4:lines 26-59; column 7:lines 59-48).

Regarding claim 9, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: difference value sorting means for sorting difference values calculated by the difference value calculation means (column 7:line 59-column 8:line 48; path loss calculations).

Regarding claim 13, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: identification code acquisition means for acquiring respective identification codes for a plurality of the mobile terminals, the identification codes being contained in the wireless signals transmitted from the mobile terminals (column 6:line 15-26; column 7:line 59-column 35; identification codes for each device is inherently necessary to sort communication between devices); close terminal determination means for determining, as close mobile terminals, at least one mobile terminals providing a reception level

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greater than a predetermined threshold value among the reception levels acquired by the reception level acquisition means (column 7:line 23-41); and selection means for selecting, in accordance with the identification codes acquired for the close mobile terminals thus determined, mobile terminals having the identification code to be connected (column 7:line 23-41; identification codes for each device is inherently necessary to sort communication between devices).

Regarding claim 14, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: identification code acquisition means for acquiring respective identification codes for a plurality of the mobile terminals, the identification codes being contained in the wireless signals transmitted from the mobile terminals (column 6:line 15-26; column 7:line 59-column 35; identification codes for each device is inherently necessary to sort communication between devices); terminal determination means for determining at least one mobile terminals providing a transmission level greater than a predetermined threshold value among the transmission levels acquired by the transmission level acquisition means (column 7:line 23-41); and selection means for selecting, in accordance with the identification codes acquired for the mobile terminals thus determined, mobile terminals having the identification code to be connected (column 7:line 23-41; identification codes for each device is inherently necessary to sort communication between devices).

Regarding claim 16, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising:



transmission level reduction means for reducing a transmission level of a wireless signal to be transmitted to a mobile terminal at a relative distance, having been estimated by the relative distance estimation means, shorter than a predetermined distance among the mobile terminals selected by the selection means (column 7:line 23-41).

Regarding claim 17, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: transmission level raise means for raising a transmission level of a wireless signal to be transmitted to a mobile terminal at a relative distance, having been estimated by the relative distance estimation means, longer than a predetermined distance among the mobile terminals selected by the selection means (column 7:line 23-41).

Regarding claim 18, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: writing control means for controlling the transmission level writing means to periodically write a transmission level into a wireless signal (column 7:lines 59-column 8:line 35).

Regarding claim 19, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: writing control means for controlling the reception level writing means to periodically write a reception level into a wireless signal (column 7:lines 59-column 8:line 35).

Regarding claim 20, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses a wireless communications system, including a plurality of the wireless communications apparatuses according to any one of claims 1-9, 18, and 19.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 10-12, 16, 17, 20 rejected under 35 U.S.C. 103(a) as being unpatentable over CALLAWAY, JR et al (US 6,745,038 B2) in view of PALAMARA et al (US 5,963,866).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: identification code acquisition means for acquiring respective identification codes for a plurality of the mobile terminals, the identification codes being contained in the wireless signals transmitted from the mobile terminals (column 6:line 15-26; column 7:line 59-column 35; identification codes for each device is inherently necessary to sort communication between devices); close terminal determination means for determining, as a close mobile terminal, a mobile terminal providing a reception level among the reception levels acquired by the reception level acquisition means (column 6:line 15-26; column 7:line 59-column 35); and selection means for selecting, in accordance with the acquired identification code of the closest mobile terminal thus determined, only the mobile terminal having the identification code to be connected (column 7:line 23-41). However, CALLAWAY does not expressly disclose wherein the terminal determination means provides selection of the closest terminal based on a largest reception level. PALAMARA discloses wherein the terminal determination means provides selection of the closest terminal based on a largest reception level (column 5:line 60-column 7:line 19). Therefore it would have been obvious to a person of ordinary skill in the art to modify CALLAWAY in this way, as taught by PALAMARA, as both systems relate to mobile terminal positioning. This is beneficial in that stronger signal strength readings would occur between the devices provide there are no barriers between the devices.

Regarding claim 11, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising:

identification code acquisition means for acquiring respective identification codes for a plurality of the mobile terminals, the identification codes being contained in the wireless signals transmitted from the mobile terminals (column 6:line 15-26; column 7:line 59-column 35; identification codes for each device is inherently necessary to sort communication between devices); terminal determination means for determining a mobile terminal providing a transmission level among the transmission levels acquired by the transmission level acquisition means (column 6:line 15-26; column 7:line 59-column 35); and selection means for selecting, in accordance with the acquired identification code of the mobile terminal thus determined, only the mobile terminal having the identification code to be connected (column 7:line 23-41). However, CALLAWAY does not expressly disclose wherein the terminal determination means provides selection of the closest terminal based on a largest reception level.

PALAMARA discloses wherein the terminal determination means provides selection of the closest terminal based on a largest reception level (column 5:line 60-column 7:line 19). Therefore it would have been obvious to a person of ordinary skill in the art to modify CALLAWAY in this way, as taught by PALAMARA, as both systems relate to mobile terminal positioning. This is beneficial in that stronger signal strength readings would occur between the devices provide there are no barriers between the devices.

Regarding claim 12, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: identification code acquisition means for acquiring respective identification codes for a plurality of the mobile terminals, the identification codes being contained in the wireless

signals transmitted from the mobile terminals (column 6:line 15-26; column 7:line 59-column 35; identification codes for each device is inherently necessary to sort communication between devices); close terminal determination means for determining, as a close mobile terminal, a mobile terminal providing a smallest difference value among the difference values calculated by the difference value calculation means (column 7:line 59-column 8:line 48; path loss calculations); and selection means for selecting, in accordance with the acquired identification code of the closest mobile terminal thus determined, only the mobile terminal having the identification code to be connected (column 7:line 23-41). However, CALLAWAY does not expressly disclose wherein the terminal determination means provides selection of the closest terminal based on a largest reception level. PALAMARA discloses wherein the terminal determination means provides selection of the closest terminal based on a largest reception level (column 5:line 60-column 7:line 19). Therefore it would have been obvious to a person of ordinary skill in the art to modify CALLAWAY in this way, as taught by PALAMARA, as both systems relate to mobile terminal positioning. This is beneficial in that stronger signal strength readings would occur between the devices provide there are no barriers between the devices.

Regarding claim 16, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: transmission level reduction means for reducing a transmission level of a wireless signal to be transmitted to a mobile terminal at a relative distance, having been estimated by

the relative distance estimation means, shorter than a predetermined distance among the mobile terminals selected by the selection means (column 7:line 23-41).

Regarding claim 17, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: transmission level raise means for raising a transmission level of a wireless signal to be transmitted to a mobile terminal at a relative distance, having been estimated by the relative distance estimation means, longer than a predetermined distance among the mobile terminals selected by the selection means (column 7:line 23-41).

Regarding claim 20, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses a wireless communications system, including a plurality of the wireless communications apparatuses according to any one of claims 10-12.

9. Claims 15, 16, 17 rejected under 35 U.S.C. 103(a) as being unpatentable over CALLAWAY, JR et al (US 6,745,038 B2).

Regarding claim 15, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: identification code acquisition means for acquiring respective identification codes for a plurality of the mobile terminals, the identification codes being contained in the wireless signals transmitted from the mobile terminals (column 6:line 15-26; column 7:line 59-column 35; identification codes for each device is inherently necessary to sort communication between devices); close terminal determination means for determining, as close mobile terminals (column 7:line 59-column 8:line 48); and selection means for

selecting, in accordance with the identification codes acquired for the close mobile terminals thus determined, mobile terminals having the identification code to be connected (column 7:line 23-41). However, CALLAWAY does not expressly disclose at least one mobile terminal providing a difference value less than a predetermined threshold value among the difference values calculated by the difference value calculation means. CALLAWAY disclose wherein the RSSI is compared to a predetermined threshold value (column 7:line 23-41). CALLAWAY further discloses determining close terminals using a difference value calculation means (column 7:line 59-column 8:line 48; path loss calculations). Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify CALLAWAY to provide at least one mobile terminal providing a difference value less than a predetermined threshold value among the difference values calculated by the difference value calculation means, as this value is directly proportional to the signal strength calculation disclosed.

Regarding claim 16, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising: transmission level reduction means for reducing a transmission level of a wireless signal to be transmitted to a mobile terminal at a relative distance, having been estimated by the relative distance estimation means, shorter than a predetermined distance among the mobile terminals selected by the selection means (column 7:line 23-41).

Regarding claim 17, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. CALLAWAY further discloses further comprising:

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transmission level raise means for raising a transmission level of a wireless signal to be transmitted to a mobile terminal at a relative distance, having been estimated by the relative distance estimation means, longer than a predetermined distance among the mobile terminals selected by the selection means (column 7:line 23-41).

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

SATO et al (US 6,845,239 B1) – Positioning system and position calculation system. See col. 16, lines 36-54.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

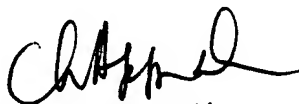


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Ariel Balaoing – Art Unit 2617

AB

  
CHARLES APPIAH  
PRIMARY EXAMINER